Methods: Clinical and resource data were collected for all patients treated with b/fEVAR at Uppsala University Hospital 2010 –2015. Patient records and administrative data were examined to assess health care resources used and material cost. Cost and resources for all adjunctive preparatory procedures (such as access operation, debranching, and staged aortic procedures) as well as all related post-operative procedures (such as extension and relining of stent grafts) were included in the analysis.

Results: A total of 56 patients were included (19 women), mean age 72 years (range 52–83), average aneurysm size 62 mm (range 36–98). The patients were ASA class 2 (n = 11), 3 (n = 36) and 4 (n = 9). Pre-operative risk factors included cardiac (n = 31), pulmonary (n = 22), cerebrovascular (n = 8), renal disease (n = 5) and previous aortic surgery (n = 17). Aneurysm types were TAAA type I n = 1, II n = 10, III n = 4, IV n = 9, JPRAA n = 32. Treatment was performed with f-EVAR n = 38, b-EVAR n = 12 and f/b-EVAR n = 6. Mortality was 3.6% at 30 days (TAAA 4.2%, JPRAA 3.1%) and 19% at 1 year (TAAA 33.3%, JPRAA 8.3%). Post-operative complications included cardiac event (n = 7), cerebrovascular event (n = 5, 4 permanent), renal impairment (n = 6, 4 permanent), paraplegia (n = 4, 1 permanent), and graft-occlusion (n = 4, 3 symptomatic). Median total hospital-stay (for all procedures) was 26 days (range 2–114) for TAAA and 8 days (2–50) for JPRAA. Median time spent in ICU was 0.9 days (0–42) for TAAA and 0 days (0–43) for JPRAA. Median operating time for the main procedure was 464 minutes (101 –1025) for TAAA and 273 minutes (62–677) for JPRAA, and for the adjunctive procedures was 97 minutes (10 – 734) for TAAA, and 0 minutes (0–1609) for JPRAA. The estimated total cost for hospital stay, intensive care, anaesthesiology, surgeries and materials was 117971 € for TAAA and 63362 € for JPRAA. Average material cost including stent grafts was 34625€ for TAAA, and 23732€ for JPRAA.

Conclusion: Endovascular treatment of complex aortic aneurysms results in acceptable clinical outcome, but is associated with high cost and resource utilisation. Stent grafts and material stand for 1/3 of the treatment cost in these patients.

Long-term Results of Iliofemoral Revascularizations in High-performance Athletes.

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Introduction: Evaluation of clinical and sports results of surgical treatment of iliofemoral arterial occlusive lesions. Long-term follow up of an operated high level athlete cohort.

Methods: From 1991 to 2013, 56 women and 435 men (mean age = 34 ± 11 years) were operated on for a symptomatic iliofemoral arterial occlusive disease in a single vascular institution. They were 26 professional athletes, 235 amateur competitors and 230 amateurs. 427 were cyclists (87%), 38 were triathletes (8%), 23 were long-distance runners (5%) and 3 were practicing another sport. Bilateral surgery was performed in 43 patients (8.7%). Pain during supra-maximal exercise, limb claudication and sub-acute ischemia were diagnosed in 475 (89%), 47 (9%) and 12 cases (2%) respectively. External iliac artery lesions were the most frequent (428 lesions, 67%). Locations were multiple in 103 cases (19% of procedures). The surgical indications were: a stenotic endofibrosis in 463 cases (87%), a native iliac thrombosis in 37 cases (7%), an unsuccessful endofibrosectomy or bypass performed in another center in 34 cases (6%). The surgical procedure consisted of an endofibrosectomy with patch in 332 cases (62%), a venous calibrated iliofemoral bypass in 202 cases (38%). 10 iliac PTA without stenting, prior to the optimal surgical treatment (average delay of 4.2 months) were performed, with the aim finishing sports season. An antiplatelet therapy was prescribed for 6 months or for life. Medical data and duplex-scan follow ups were kept prospectively in a database and analyzed.

Results: A 28 years-old professional patient died three weeks after an endofibrosectomy, of iliac rupture because he retrained too early. A post-operative thrombosis required an iliac thrombectomy in 11 cases. This procedure was associated 1 times with a popliteal thrombectomy. 26 patients were lost to follow up within 3 years. The mean follow up was 15.7 ± 7.5 years. Sport resumption was possible in 97%. The mean delay for athletic recovery was 3.2 ± 1.5 months. Long-term athletic performances were improved at 3, 5 and 7 years, 97%, 95% and 91% respectively. Iliac revascularization, endofibrosectomy and iliofemoral bypass primary actuarial patencies were at 3, 5 and 10 years: 97%, 96%, 94%/96%, 94%, 92%/98%, 98% and 95% respectively. Secondary patencies were 100%. No predictive factor of failure was found.

Conclusion: The long-term benefits of iliofemoral revascularizations are good. They validate surgical indications. However, a sports rehabilitation protocol and a strict selection of the indications must be further confirmed.

Mid-term Outcomes of Renal Branches versus Renal Fenestrations for Complex Aneurysm Repair

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Introduction: To investigate renal outcomes following endovascular repair of thoraco-abdominal aneurysms (TAAA) with renal fenestrated or branched endografts.

Methods: Renal outcomes following TAAA endovascular repair performed with renal branches were collected in 5 European high volume centers and compared with renal outcomes following TAAA endovascular repair performed with renal fenestrations. Renal re-intervention and occlusion rates and freedom from any renal outcome and death were analyzed per-patient and per-target vessel.

Results: 449 patients were included in this retrospective study (235 treated with branched devices (BEVAR) and 214 with fenestrated devices (FEVAR)). 841 renal vessels were analyzed (436 perfused by branches and 411 by fenestrations). Both groups were comparable except for sex, smoking habit and anti-vitamin K treatment. Technical success rate was 98.7% and 99.1% respectively.

The mean follow up was 19.2 months (SD 18.2) after BEVAR and 24.3 months (SD 20.6) after FEVAR. During follow up, renal re-intervention rates were similar in both groups (4.7% vs. 5.2%). The renal occlusion rate was significantly higher following BEVAR (9.4% vs. 2.3%, P = 0.002), and the 2-year freedom for renal occlusion rate was 94.4% (±SE, 92.2%-96.6%) following BEVAR and 98.9% (±SE, 98.1%-99.7%) following FEVAR (P < 0.001). The 2-year survival rate was 73.4% (±SE, 69.8%-77%) and 80.7% (±SE, 77.4%-84%) following BEVAR and FEVAR respectively.

Conclusion: Mid-term renal outcomes following endovascular repair of TAAA are satisfactory. Endograft designs incorporating renal fenestrations rather than renal branches are associated with significantly improved mid-term patency rates.

Arch Aneurysm Repair with Branched Endografts

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Introduction: Following the pioneering experience and the initial learning curve, we evaluated the subsequent results in 3 aortic endovascular centres with significant experience (>10 cases) with this new technique.

Methods: Between April 2013 and November 2014, all patients with arch aneurysms >55 mm deemed unfit for open surgery after multidisciplinary evaluation, and treated with 2 inner branches endografts, were included. Inner branches were designed to perfuse the brachiocephalic trunk and the left common carotid artery (LCC) in all cases. According to reporting standards, technical success, endoleaks, procedure length, fluoroscopy duration and contrast volume injected, early and late complications and mortality were retrospectively collected in a unique electronic database.

Results: Twenty-seven patients were included and treated for arch aneurysms (70%) or chronic dissections (30%). Technical success was always achieved. No patients died during the 30 day post-operative period. Early